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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/023,142	12/18/2001	Hoang Viet Nguyen	NL 000730	4621

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PHILIPS ELECTRONICS NORTH AMERICA CORPORATION
INTELLECTUAL PROPERTY & STANDARDS
1109 MCKAY DRIVE, M/S-41SJ
SAN JOSE, CA 95131

EXAMINER

ROSE, ROBERT A

ART UNIT PAPER NUMBER

3723

DATE MAILED: 09/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/023,142	NGUYEN ET AL.	
	Examiner	Art Unit	
	Robert Rose	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/18/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Receipt is acknowledged of Applicant's Foreign Priority papers, filed December 18, 2001.
2. Receipt is acknowledged of Applicant's Prior Art Statement, filed December 18, 2001.
3. Receipt is acknowledged of Applicant's Preliminary Amendment, filed December 18, 2001.
4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 8-15, 17-18, 26-33, and 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 8, lines 3-4 the phrase "the passivating agent" is without proper antecedent support. Similarly, in claims 9-11, 13, 17, 26-31, and 35 the same phrase appears without antecedent basis. In claim 14, line 3 the phrase "the etching agent" lacks a proper antecedent basis. Again, in claims 15, 18, 32, 33, and 36 the phrase "the etching agent" lacks an antecedent basis.
6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1-6, 8-11, 14-24, and 37 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Hu et al. Hu et al disclose an arrangement and method for cmp comprising all of the subject matter set forth in applicant's claims above. Note first dispensing means(56), and second dispensing means(70) for dispensing first and second fluids on the polishing pad, the first fluid containing an etching agent and the second fluid containing an abrasive slurry with a passivating agent.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 7, 12-13, 25, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al. The method and apparatus of Hu et al is designed for polishing of metal oxide layers, formed on the surfaces of substrates from passivation of the exposed metal. To polish tungsten in this manner would have been an obvious application to those of ordinary skill in the art, as tungsten layers are typically polished by forming a passivation layer and removing that layer by cmp. The use of hydrogen peroxide as an oxidizing agent in cmp abrasive slurries, and phthalic acid as the passivating agent are old and well known in the polishing art.

10. Claims 16, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al in view of Sandhu et al. Sandhu et al teaches at column 5, lines 35-40 that the wafer carrier may be rotated in either direction during polishing. To rotate the

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wafer carrier in the apparatus of Hu et al in either clockwise or counterclockwise direction would have been obvious as taught by Sandhu et al.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kikuta et al is cited of interest to show a polishing apparatus having a first and second dispensing nozzle located upstream and downstream of the wafer carrier, for dispensing different liquids. Lin et al is cited to show plural dispensing means located both upstream and downstream of the wafer carrier(Fig.3). Mullins and Chiou et al are cited to show plural slurry dispensing nozzles in the form of a spray bar.

12. Any inquiry concerning this communication should be directed to Robert Rose at telephone number (703) 308-1360.

Robert Rose
Primary Examiner
Art Unit 3723



Rr

September 8, 2004.